STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
UPPER PENINSULA DISTRICT OFFICE

RICK SNYDER
GOVERNOR

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DIRECTOR

March 19, 2018

Aquila Resources Inc.
E 807 Gerue Street
Stephenson, Michigan 49887

Submission Number: 2NN-5PE0-MT3W
County: Menominee
MiWaters Site: 55-Aquila Resources Inc-Back Forty Project
Project Name: Back Forty

Dear Mr. Hildred:

SUBJECT: Federal Objection to Issuance of 404 Permit

The Michigan Department of Environmental Quality's (MDEQ), Water Resources Division (WRD), has received a letter dated March 8, 2018 from the United States Environmental Protection Agency (USEPA) with comments to the December 8, 2017 public notice for your application for permit under Part 31, Water Resources Protection, 301, Inland Lakes and Streams, and Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act of 1994, as amended. The letter details a federal objection to the issuance of a permit under Part 404 in accordance with the Clean Water Act Section 404 Program Memorandum of Agreement between USEPA and MDEQ. The USEPA requires that MDEQ work with the applicant to address and resolve the objection within 90 days of the issuance of the USEPA letter.

To assist you with facilitating your response, MDEQ has prepared a list of information that will address the federal objection. To address the items outlined in the USEPA letter, the following information is required:

Complete responses to the questions outlined in MDEQ's January 19, 2018 and March 2, 2018 letters.

- Letters are enclosed for your reference.

Adequate characterization of wetland impacts, including any secondary wetland or stream impacts.

- Provide further clarification of the wetlands classified as "upland wetlands".
- It is not demonstrated or supported with the information contained in the application that the "upland wetlands" are not influenced by groundwater.

    - Provide additional site specific documentation to support the classification of "upland wetland" as being disassociated from and not influenced by groundwater.
- Proximity and the 50% criteria for indirect impacts to wetlands is not supported.
    - Provide significant detail on how indirect impacts to wetlands have been determined.
    - Provide a clear distinction on what is determined to be an impact, both direct and indirect or secondary.
    - Include the metrics and thresholds that have been established to determine an "impact".
    - Additional documentation is needed to establish that pit dewatering will not lower the water table within wetlands.
        - This may include, but is not limited to, additional well and soil data, pump tests, or further classification and documentation of hydrologically restrictive features.
- Figure 3, Field Collected Data Overview Map, prepared by Stantec, shows a field delineated waterway within wetland 14. Provide further documentation of the classification of this waterway.
- During the Wetland Identification Program (WIP) performed by MDEQ in June 2017, a stream was identified in Wetland 6. Provide further documentation of baseline conditions of this wetland complex and stream.
- The application should define and address potential secondary impacts to wetlands beyond hydrologic impacts. Potential secondary impacts should address the current project site plan and be consistent with the conditions of the Part 632, Air Quality and NPDES permits.
    - Information such as topsoil and spoils storage design, liner design and locations, sump details, ditching networks and non-contact stormwater discharges should be included as part of the final site and construction plans. The application should include comprehensive detail on how water moves through and around the project site.
- Wetlands watershed budgets.
    - The watershed budgets do not support the applicant's position that wetland impacts will be minimal. All watershed budgets show a reduction of hydrologic inputs related to the project but do not include information on how those reductions in hydrology will impact the wetland complex.
        - Wetland watershed budgets shall consider the existing inputs and outputs that support the wetland as the baseline requirement for the inputs and outputs necessary to support the existing wetland conditions. Proposed impacts to the existing conditions should be quantified and analyzed to determine the impacts to the wetland function and values as described in Section 30302 of Part 303.
            - Specific attention should be given to wetlands that may experience a loss of hydrology during the growing season that could impact wetland species composition or conditions necessary to support biologic life cycles.

Additional details regarding monitoring, impact criteria, and specific adaptive management mechanisms sufficient to demonstrate avoidance and minimization of impacts to aquatic resources and prevention of contamination and unanticipated discharges.

- Baseline Water Quality
    - Water quality should continue to be monitored and recorded to establish a comprehensive baseline of hydrologic conditions and water quality.
- Monitoring Plan
        - The existing monitoring plan (Section 10-B) should be further detailed to include additional monitoring locations between site development and aquatic resources that specifically targets monitoring for potential leachate and constituent loading in surface and ground waters. This plan should include an updated Table 2 and corresponding Figure 2 of Section 10-B which shows the locations of the additional monitoring wells proposed in section 2.1 of the Groundwater Monitoring Plan.
            - Develop a detailed wetland monitoring plan that includes monitoring for hydrology and wetland function and values. The monitoring plan shall include metrics and thresholds for impacts, identification of measures to avoid and minimize impacts, identification and monitoring of regional reference site(s) outside the scope of the proposed project impacts. This plan shall also include a detailed plan layout and identification of a monitoring well and piezometer network that will establish a baseline of existing conditions and identify authorized and potential for unanticipated impacts to aquatic resources.
        - Vegetation monitoring should establish transects relative to the project location and include an assessment of floristic quality.
- Adaptive Management
    - The adaptive management plan shall be further detailed to include methods of avoidance and minimization of impacts prior to enacting adaptive management techniques.
    - The adaptive management plan identifies wetland hydrology augmentation and high pressure grout injection as the adaptive management techniques that will be employed. Provide significant detail on the metric that will be used to identify that adaptive management must be prepared and employed.
        - Provide details of how hydrology augmentation or grout injection will be analyzed for feasibility under conditions of drainage or subsurface fracture, analysis of cost and implementation, and an estimated schedule on how these measures would be enacted and monitored.
        - The adaptive management plan also identifies wetland mitigation as a management measure if additional wetland impacts cannot be

avoided or minimized. Mitigation is not a management tool and can only be accepted as a condition of a permit once the proposed impacts meet permitting criteria.

- The adaptive management plan shall include impacts to wetlands and streams that may not be related to dewatering. Adaptive management should include both direct and indirect or secondary impacts to regulated resources, should demonstrate avoidance and minimization of impacts to aquatic resources, and focus on the prevention of contamination and unanticipated discharges.

Demonstration and supporting documentation that the mine site plan is protective of water quality throughout the life of mine and post-closure.

- The groundwater modeling report addresses the mobilization of constituents. Provide further detail on the mobilization analysis including mobilization under acidic, reduced, and anoxic conditions.
- Provide information on the location and design of the containment liners and how the liner material will be managed post closure.
- Provide significant detail on the material that is proposed to backfill the mine pit consistent with the current proposed site plan which includes comingled tailings. Has any chemical analysis or leachate analysis been conducted for comingled tailings? Provide sufficient details of any analysis conducted as it relates to potential discharge impacts to ground and surface waters.
- Further clarify how the design of a low-permeability cutoff wall, in the location and configuration as currently proposed in the wetlands application, acts as a barrier to prevent outflow from the pit to the Menominee River.
    - Further detail how mobilized constituents in the backfilled pit will be restricted from entering the groundwater system and potentially discharging to the Menominee River or associated wetlands and streams.
- Provide further detail on the material that will be stored on the project surface in perpetuity.
    - Include detailed information on how the site is protective of water quality post-closure. Provide sufficient details on how the comingled waste rock and tailings will be contained in perpetuity as to not potentially expose reactive materials to weathering and oxidation.
- Identify if the outfall may potentially discharge material post-closure or if the proposed outfall will be removed as part of reclamation.

Additional documentation of Menominee River bank stability/ erosion potential to demonstrate mine integrity.

- The proposed mine pit is separated from the Menominee River by approximately 160 to 225 feet of alluvium and the proposed cutoff wall. The average land width between the pit perimeter and the Menominee River has decreased from the proposed site plan submitted in January 2017 and from the approved Part 632 site plan.

- Provide additional details on the slope stability study and further discussion on the analysis that has been conducted. Study and analysis should address the current proposed distance between the river and pit perimeter and current proposed infrastructure development including load bearing roadways.
- In July of 2016, the Upper Peninsula experienced a 1,000-year storm event. In consideration of the increasing frequency of heavy rain events, provide further study on bank stability and erosion potential that specifically addresses the areas of land between the pit perimeter and the Menominee River. Further slope stability study shall include analysis of hydrostatic pressure in the event of flooding up to and including a 1,000-year event similar to conditions in the northwestern Upper Peninsula and northern Wisconsin on July 12, 2016. Further analysis shall also include discussion on the potential for saturation of the alluvium material within this area and potential for liquefaction or loss of sheer strength under similarly flooded conditions.
- Analysis shall also include the potential for erosion along the bank of the Menominee River under storm events and how potential erosion may impact or undermine bank stability throughout this area of site development.
- Response shall include thorough discussion on how the proposed pit location and development supports the integrity of the banks of the Menominee River.

Additional supporting documentation demonstrating that the preferred-alternative is the least environmentally damaging practicable alternative (LEDPA), e.g. documenting off-site alternatives for waste rock storage including cost analysis. The LEDPA shall demonstrate that the applicant's alternative avoids and minimizes impacts to wetlands and aquatic resources.

- Provide a final site plan. Final site plan should include the location of storm water management facilities, waste management features, collection liners, ditching, and site infrastructure development including proposed power substation and road construction, realignments or widening.
- Address future underground mining.
- Further detail the LEDPA analysis to include the economic considerations and asserted costs.
    - Alternatives should address the specific site(s) and locations that were considered for the analysis.
    - Documentation should support why the alternative is considered not economically feasible, which should include a detailed cost analysis.
- Provide description of what considerations were given to alternative upland areas near the project site, e.g., state land to the east of the site, or other nearby properties.
- Provide further analysis on how the preferred alternative avoids and minimizes impacts to aquatic resources.

Additional supporting documentation demonstrating that the proposed preservation area meets the requirements of the 2008 Federal Mitigation Rule.

- The proposed mitigation does not meet the goal of no-net-loss of in-kind habitat value.
    - The applicant should demonstrate consideration of opportunities for stream restoration nearer to the project site.
- The proposed preservation does not demonstrate that the mitigation meets the requirements of the 2008 Federal Mitigation Rule.
    - Wetlands must be under demonstrable threat, perform exceptional physical or biological functions and be permanently protected.
        - Additional documentation should be provided to demonstrate that the proposed preservation area is under threat.
        - Additional documentation should be provided that demonstrates the preservation wetlands perform exceptional physical and/or biological function.
- The proposed preservation is also part of the proposed land exchange and will place the preservation under MDNR management. To ensure the land management plan will meet the requirements for mitigation, MDNR should agree to the standard MDEQ requirements for Conservation Easement, which include the prohibition of logging within both the uplands and wetlands and perpetual protection from identified threats.

Provide any additional cultural resources studies that have been conducted in the expanded project area.

- Identify any resources that have been documented and how those resources are being addressed.

If you have any questions or would like to discuss this comment response process, please contact me at 906-236-0380; WilsonK17@michigan.gov; or MDEQ, Upper Peninsula District Office, 1504 West Washington Street, Marquette, MI, 49855, Marquette, Michigan 49855.

Sincerely,

Kristi Wilson
Upper Peninsula District Office
Water Resources Division

Enclosure: EPA Comment Letter WW-16J, Federal Comments, MDEQ Letter for Clarification and Amplification, MDEQ Letter Addressing Public Comment.

cc: VIA ELECTRONIC TRANSMISSION
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